

Work Order ID 136323

September 02, 2015 11:24:19 AM

136323

Page 1

Item ID: D5203-045

Accept

N900040100

Setup Start

NS1

Revision ID:

Item Name: Strut Weldment

Stop

NS2

Start Date: 9/2/2015

Start Qty: 1.00

1

Cust Item ID:

Required Date: 9/9/2015

Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan: SHDate: 20150902

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Draw Nbr

Revision Nbr

D5203

A

110

Weld per dwg A/R S.S. rod Batch: M123823 0.00***110***

Large Fab

Memo

0.00

Large Fab

Weld stud to strut as per dwg

GRIND WELD FLUSH

120

QC9- Inspect visual per QSI004- Fusion Welds 0.00

120

QC

Memo

0.00

Quality Control

130

QC5- Inspect part completeness to step on W/O 0.00

130

QC

Memo

0.00

Quality Control

DAS

9

9-89

DAS

9

9-89

1 1509.24① 1509.24① 1509.24

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER:							
Misidentified ☐	Past Due ☐								

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QS1042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : _____					

Work Order ID 136323

September 02, 2015 11:24:20 AM

136323

Page 3

Item ID: D5203-045 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Strut Weldment
Start Date: 9/2/2015 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 9/9/2015 Req'd Qty: 1.00 ***1*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
170	QC21 - Final Inspection - Work Order Release	0.00							
170									
QC	Memo	0.00							
Quality Control									

MCS SEP 24 2015

SW 20150924

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Description Work Order Deviation		Disposition			
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
		OTHER : ☐			

Picklist Print

September 02, 2015 11:24:30 AM

Page 1

Work Order ID: 136323

136323

Parent Item: D5203-045

D5203-045

Parent Item Name: Strut Weldment

Start Date: 9/2/2015

Required Date: 9/9/2015

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A 15.01.08 NEW ISSUE DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
AN665-34R *AN665-34R* Clevis		Purchased	No				Each	12.0000		2			
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				ST330				12					
				M130388				4					
				M133031				8					
D4794-3 *D4794-3* Stud		Manufactured	No				Each	2.0000		2			
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				WA001				2					
				133988				2					
D5203-1 *D5203-1* Strut		Manufactured	No				Each	0.0000		1			
NAS509-4C *NAS509-4C* NUT		Purchased	No				Each	15.0000		2			
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				ST262				15					
				M130466				5					
				M131584				10					

**

Sp 15-09-24

**

EL 15-9-24

**

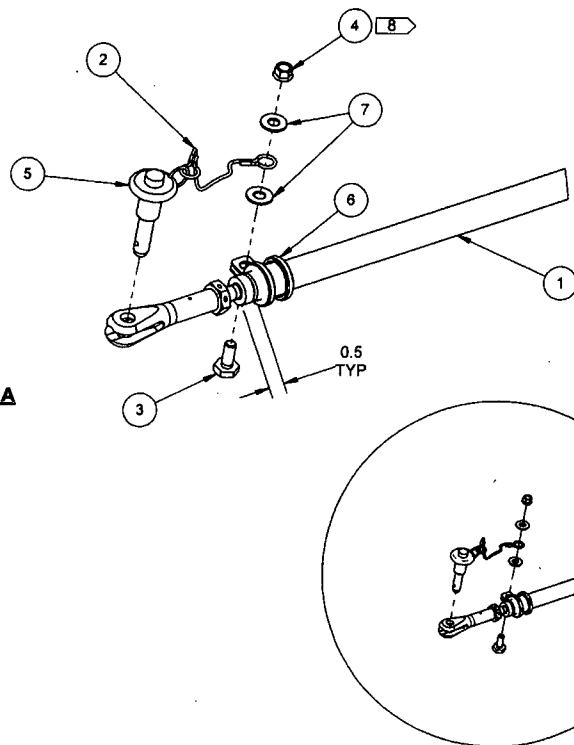
EL 15-9-24

**

Sp 15-09-24

2X

DETAIL A



D5203-041 STRUT ASSEMBLY

ITEM	QTY	P/N	DESCRIPTION
	X	D5203-041	STRUT ASSEMBLY
1	1	D5203-045	STRUT WELDMENT
2	2	D2690-6	LANYARD ASSEMBLY
3	2	AN3C3A	BOLT
4	2	MS21043-3	NUT, SELF-LOCKING
5	2	MS17984-C405	PIN, QUICK RELEASE (NASM17984-C405)
6	2	MS21919WCF8	CLAMP
7	4	NAS1149C0332R	WASHER

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 0.95 lbs
- 8) TORQUE NUTS TO 20-25 in-lb

RELEASED

2015 JAN 29

ECN 15-508

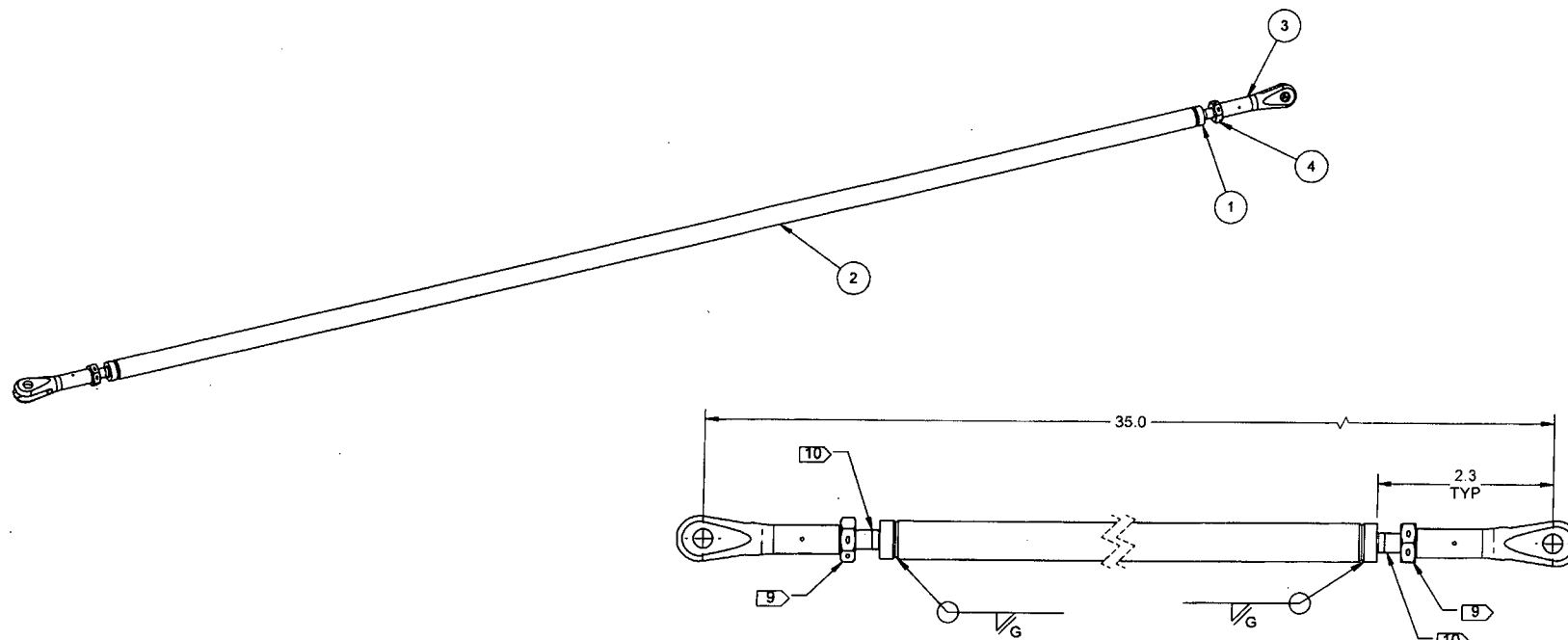
120150902

SH 136323

A		NEW ISSUE		RF	14.12.19
REV.	DESCRIPTION			BY	DATE
DESIGN	RF	DART AEROSPACE LTD			
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA			
CHECKED	VS	DRAWING NO.	D5203	REV. A	
MFG. APPR.	DD			SHEET 1 OF 6	
APPROVED	HS	TITLE	STRUT ASSEMBLY	SCALE	NTS
DE APPR.	DS				
DATE	14.12.19				

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ITEM	QTY	P/N	DESCRIPTION
	X	D5203-045	STRUT WELDMENT
1	2	D4794-3	STUD
2	1	D5203-1	STRUT
3	2	AN665-34R	THREADED CLEVIS
4	2	NAS509-4C	NUT, JAM



D5203-045 STRUT WELDMENT

RELEASED

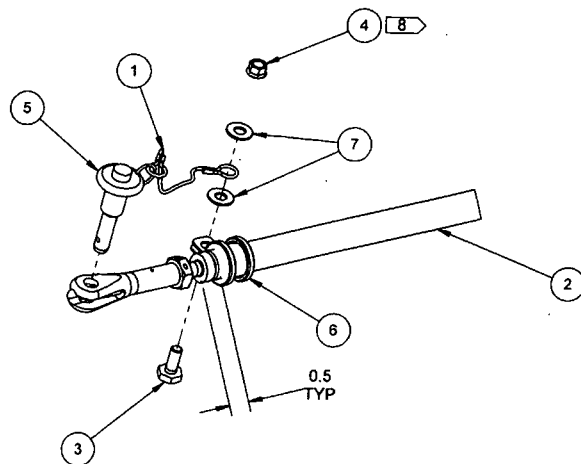
2015 JAN 29 *up*

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.82 lbs
- 8) WELD PER DART QSI 004
- 9) HAND TIGHTEN NAS509-4C NUT
- 10) USE TECTYL 502C CLASS I, MIL-PRF-16173E GRADE 2 OR EQUIVALENT ANTI-SEIZE COMPOUND ON THREAD

APPROVED

DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	VS	DRAWING NO.	REV. A
MFG. APPR.	DD	D5203	SHEET 2 OF 6
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	STRUT ASSEMBLY	NTS
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DETAIL B

D5203-043 STRUT ASSEMBLY

ITEM	QTY	P/N	DESCRIPTION
	X	D5203-043	STRUT ASSEMBLY
1	2	D2690-6	LANYARD ASSEMBLY
2	1	D5203-047	STRUT WELDMENT
3	2	AN3C3A	BOLT
4	2	MS21043-3	NUT, SELF-LOCKING
5	2	MS17984-C405	PIN, QUICK RELEASE (NASM17984-C405)
6	2	MS21919WCF8	CLAMP
7	4	NAS1149C0332R	WASHER

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 1.19 lbs
- 8) TORQUE NUTS TO 20-25 in-lb

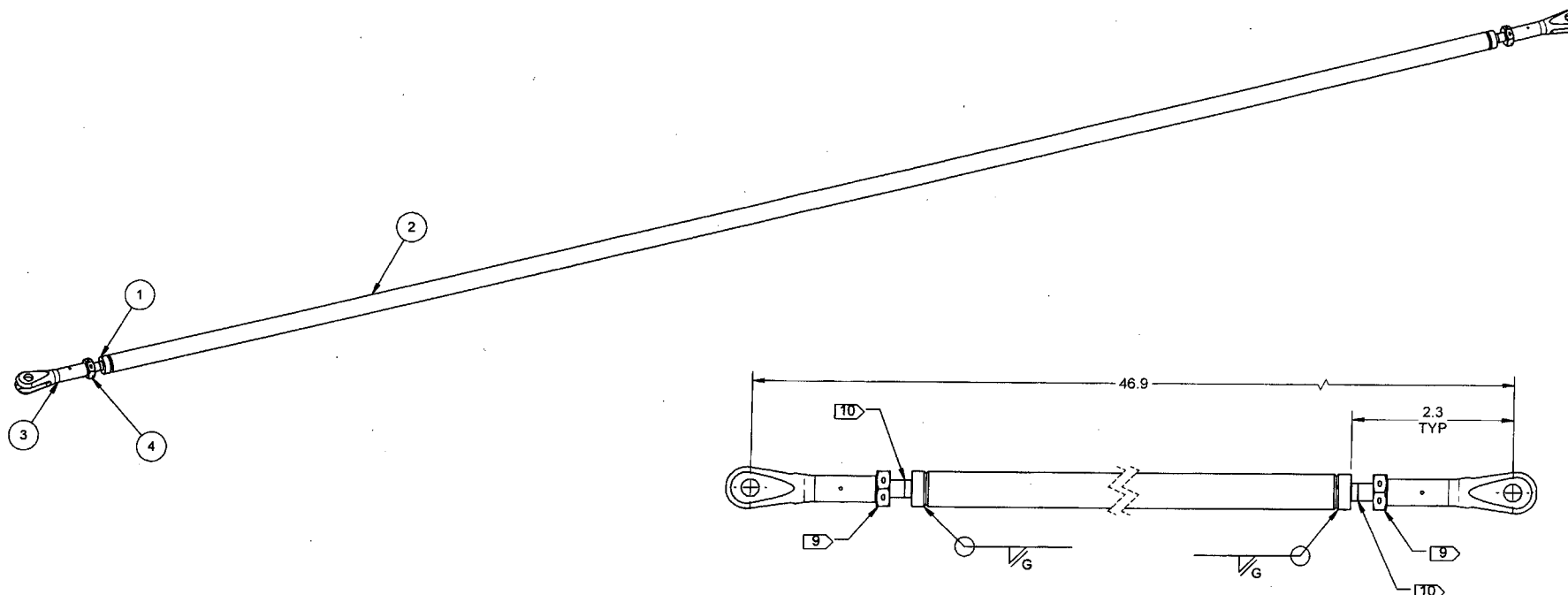
APPROVED

DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	VS	DRAWING NO.	REV. A
MFG. APPR.	DD	D5203	SHEET 3 OF 6
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	STRUT ASSEMBLY	NTS
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RELEASED

2015 JAN 29

ITEM	QTY -047	P/N	DESCRIPTION
	X	D5203-047	STRUT WELDMENT
1	2	D4794-3	STUD
2	1	D5203-3	STRUT
3	2	AN665-34R	THREADED CLEVIS
4	2	NAS509-4C	NUT, JAM



D5203-047 STRUT WELDMENT

RELEASED

2015 JAN 29

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 1.06 lbs
- 8) WELD PER DART QSI 004
- 9) HAND TIGHTEN NAS509-4C NUT
- 10) USE TECTYL 502C CLASS I, MIL-PRF-16173E GRADE 2 OR EQUIVALENT ANTI-SEIZE COMPOUND ON THREAD

APPROVED

DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	VS	DRAWING NO.	REV. A
MFG. APPR.	DD	D5203	SHEET 4 OF 6
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	STRUT ASSEMBLY	NTS
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0.030 x 45°
CHAMFER
2 PL

Ø

30.07

Ø0.500
REF

0.049
REF

D5203-1 STRUT

RELEASED

2015 JAN 29 *ap*

NOTES:

- 1) MATERIAL: AISI 304/316 STAINLESS STEEL SEAMLESS ROUND TUBING
PER ASTM A213 OR ASME SA213 OR ASTM S269
REF DART SPEC M304TR0.500W.049
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.60 lbs

APPROVED

DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	VS	DRAWING NO.	REV. A
MFG. APPR.	DD	D5203	SHEET 5 OF 6
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	STRUT ASSEMBLY	NTS
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0.030 x 45°
CHAMFER
2 PL

Ø

42.00

Ø0.500
REF

0.049
REF

D5203-3 STRUT

RELEASED

2015 JAN 29 *qr*

NOTES:

- 1) MATERIAL: AISI 304/316 STAINLESS STEEL SEAMLESS ROUND TUBING
PER ASTM A213 OR ASME SA213 OR ASTM S269
REF DART SPEC M304TR0.500W.049
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.84 lbs

APPROVED

DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	VS	DRAWING NO.	REV. A
MFG. APPR.	DD	D5203	SHEET 6 OF 6
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DE APPR.	DS	STRUT ASSEMBLY	NTS
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